REMARKS/ARGUMENTS

Claim Rejections under 35 U.S.C. § 103

A. Claims 1, 2, 3, 6, 9-14, 21, and 22 stand rejected under 35 U.S.C. § 103 (a) as allegedly obvious over Usui (U.S. Patent No. 5,924,798) in view of Nii et al. (U.S. Patent No. 4,938,611). The Office Action alleges that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Usui to include a fluid recirculation passage as described Nii et al. for purposes of recirculating fluid from one end of the bearing to the other and discharging heat from the fluid. Applicant respectfully traverses the rejection.

Claim 1 recites, "a recirculation channel disposed outside of the liner, the recirculation channel for recirculating lubricating fluid during relative rotation of the shaft and the liner."

Usui describes a hydrodynamic bearing apparatus and method of manufacturing that includes rotatably fitting a shaft to a bearing and cutting hydrodynamic pressure generating grooves on a bearing surface of the bearing or the shaft (column 2, lines 16-21). Usui does not disclose or suggest "a recirculation channel disposed outside of the liner, the recirculation channel for recirculating lubricating fluid during relative rotation of the shaft and the liner" and does not disclose or suggest a similar feature. This fact is acknowledged by the Examiner who states, Usui "does not disclose a recirculation channel disposed outside the liner."

Nii (U.S. Patent No. 4,938,611) describes a bearing apparatus for rotation at high speeds and which has durability and sealing performance (column 2, lines 38-41). The Examiner asserts that, "Nii teaches a bearing with a sleeve (6) and a recirculation channel (c) outside of the liner for the purposes of recirculating fluid from one end of the bearing to the other (see fig 3) and to discharge heat from the fluid to the bearing housing (col. 4, lines 26-28). Applicant respectfully disagrees. Figure 3 and columns 3-4, lines 52-68 & 1-11 of Nii illustrate and describe a radial bearing section including a shaft (1) surrounded by radial bearings (6 & 7). The radial bearings (6 & 7) have passages (c) for moving fluid around the radial bearings (6 & 7) and between the shaft (1) and bearing housing (14). Applicant respectfully submits Nii's radial bearings do not comprise "sleeves" but are radial bearings. Applicant further submits that Nii's radial bearings

do not comprise "sleeves" by analogy such that the Examiner's referring to Nii's radial bearing as sleeves is wholly improper. (See Final Office Action (Paper No. 20070328; page 2, line 20). Indeed, the term "sleeve" is wholly absent from the disclosure of Nii and there is simply no indication or implication that Nii's radial bearings are equivalent to "sleeves." Accordingly, the contention that Nii discloses or suggests a "liner" as required by claim 1 and/or discloses or suggests a "recirculation channel disposed outside of the liner" is both explicitly and implicitly absent from Nii.

While Applicant appreciates that "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents[,]" the U.S. Supreme Court has made clear that an inquiry into whether there was "...a teaching, suggestion, or motivation to combine known elements [provides] a helpful insight." *KSR Int'l v. Teleflex, Inc.*, 550 U.S. ___ (2007). Such an inquiry helps to uphold the well-settled principle that an invention "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *Id.*

In view of the above, Applicant respectfully submits that the Examiner has rendered the instant claimed invention obvious "merely by demonstrating that each of its elements was, independently, known in the prior art" and by using hindsight reconstruction to use "that which the inventor taught against its teacher." In this regard, Usui does not disclose or suggest to one of ordinary skill in the art the desirability of modifying the "hydrodynamic bearings" in order to recirculate fluid from one end of the bearing to the other and/or to discharge heat from the fluid. Similarly, Nii does not disclose or suggest to one of ordinary skill in the art the desirability of modifying the "hydrodynamic bearings" as disclosed by Usui. Additionally, Nii is directed to solving problems related to "plain bearings" (column 1, lines 20-47) whereas Usui is directed to solving problems related to "hydrodynamic bearings" (column 1, lines 14-35). Accordingly, it more appears that the Examiner has used hindsight reconstruction and the Applicant's disclosure "as a blueprint to reconstruct the claimed invention from the isolated teachings of the prior art," since the "expressed motivation" to combine is lacking from the individual references and does

not emanate from that knowledge generally available to the skilled artisan. *Grain Processing Corp. v. American Maize-Prods. Co.*, 840 F.2d 902 (Fed. Cir. 1988). Further, "plain bearings" are wholly different from "hydrodynamic bearings" such that one of ordinary skill in the art of "plain bearings" (i.e., Nii) would not look to "hydrodynamic bearings" for answers to problems related thereto (i.e., Usui), and vice versa. Indeed, the skilled artisan would readily recognize that such arts are completely separate and distinct technologies. Therefore, the possible sources of motivation to combine the teaching of the references: 1) the nature of the problem to be solved; 2) the teachings of the prior art; and 3) the knowledge of persons of ordinary skill in the art, are not satisfied. *In re Rouffet,* 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

Accordingly, for at least the reasons set forth above, Usui in view of Nii fails to disclose or suggest each and every element of claim 1 to thereby render claim 1, or those claims depending therefrom, obvious. The rejection should be withdrawn.

B. Claims 1-3 and 6-8 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Tanaka (U.S. 2001/0022869) in view of Nii (U.S. Patent No. 4,938,611). It should be noted the Examiner asserted Tanaka in view of Nii (U.S. Patent No. 4,938,611) as the basis for this rejection (page 6, lines 5-6 of the 'Final Office Action' Paper No. 20070328). However, the asserted motivation to combine said references is indicated as applying Usui with Nii (pages 6-7, lines 18-19 & 1-2, respectively, of the 'Final Office Action' Paper No. 20070328). Thus, for purposes of addressing the Examiner's rejection Applicant assumes the Tanaka is applied rather than Usui for this rejection. Applicant requests clarification for the prosecution history record. The Office Action alleges that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the [Tanaka] in view of Nii, in reliance on the desired purposes of recirculating fluid from one end of the bearing to the other and discharging heat from the fluid. This rejection is respectfully traversed.

Tanaka (U.S. 2001/0022869) describes a fluid bearing device with wear resistance in starting and stopping (paragraph [0015]). However, the recited feature of instant claim 1 "a

recirculation channel disposed outside of the liner, the recirculation channel for recirculating lubricating fluid during relative rotation of the shaft and the liner" is not disclosed or suggested by Tanaka. Further, the Examiner acknowledges that Tanaka. "does not disclose a recirculation channel disposed outside the liner."

Nii (U.S. Patent No. 4,938,611) is herein applied from above. As previously indicated, Nii does not teach or suggest the claim limitations of a "liner" and/or a "recirculation channel [to be] disposed outside of the liner."

While Applicant appreciates that "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents[,]" the U.S. Supreme Court has made clear that an inquiry into whether there was "...a teaching, suggestion, or motivation to combine known elements [provides] a helpful insight." *KSR Int'l v. Teleflex, Inc.,* 550 U.S. ___ (2007). Such an inquiry helps to uphold the well-settled principle that an invention "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *Id.*

Accordingly, Applicant respectfully submits that the Examiner has attempted to render the instant claimed invention obvious "merely by demonstrating that each of its elements [were], independently, known in the prior art" and by combining the such teachings without an explicit or implicit reason that emanates from the prior art or that knowledge generally available to the skilled artisan. In this regard, Tanaka does not teach or suggest the desirability to modify the disclosed "fluid dynamic bearings" in order to recirculate fluid from one end of the bearing to the other and/or to discharge heat from the fluid. Nii does not disclose or suggest the desirability to modify "fluid dynamic bearings" as disclosed by Tanaka. Additionally, Nii is directed to solving problems related to "plain bearings" (column 1, lines 20-47) whereas Tanaka is directed to solving problems related to "fluid dynamic bearings" (page 2, paragraphs [0021] & [0022]). Accordingly, one of ordinary skill in the art of "plain bearings" (i.e. Nii) would not look to "fluid dynamic bearings" (i.e. Tanaka et al.), or vice versa, for answers to problems as each are completely separate and distinct bearing technologies. Consequently, it appears the Examiner has

combined the teachings of the references using "hindsight" reconstruction since the "expressed motivation" to combine is absent from the prior art references and does not appear to emanet from that knowledge generally available to the skilled artisan. Therefore, Applicant respectfully submits that the Examiner ahs failed to set forth a reasonable motivation to combine the references based on: 1) the nature of the problem to be solved; 2) the teachings of the prior art; and 3) the knowledge of persons of ordinary skill in the art. *In re Rouffet,* 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

Accordingly, for at least the reasons set for the above, Tanaka in view of Nii fails to disclose or suggest each and every element of claim 1, and those claims depending therefrom, as required to support a *prima facie* case of obviousness.

The rejection should be withdrawn.

C. Claims 4 and 5 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Tanaka (U.S. 2001/0022869) in view of Nii (U.S. Patent 4,938,611) as applied to claims 1-3, further in view of Titcomb (U.S. Patent 5,516,212). The Office Action alleges that it would have been obvious to incorporate a capillary seal between the liner and a tapered section of the shaft taught by Titcomb into the device of Tanaka, in the reliance on the motivation to seal the lubricating fluid between the bearing surfaces. This rejection is respectfully traversed for the following reasons.

Tanaka and Nii have been discussed. Tanaka "does not disclose a recirculation channel disposed outside the liner." Nii does not teach the claim elements of a "liner" and/or a "recirculation channel [to be] disposed outside of the liner" is absent. Neither Tanaka and/or Nii disclose a capillary seal defined between a wall of the liner and a tapered section of the shaft.

Titcomb (U.S. Patent 5,516,212) fails to cure the deficiencies of Tanaka in view of Nii to include a "liner" and/or a "recirculation channel disposed outside of the liner" as recited in claim 1 from which claims 4 and 5 depend.

Tanaka does not teach or suggest the desirability of modifying the disclosed "fluid dynamic bearings" in order to recirculate fluid from one end of the bearing to the other and/or to discharge heat from the fluid. Nii does not teach or suggest the desirability of modifying "fluid

dynamic bearings" as disclosed by Tanaka Additionally, Nii is directed to solving problems related to "plain bearings" (column 1, lines 20-47) whereas Tanaka & Titcomb are directed to solving problems related to "fluid dynamic bearings" (page 2, paragraphs [0021] & [0022]; column 4, lines 19-22, respectively). Accordingly, one of ordinary skill in the art of "plain bearings" (i.e. Nii et al.) would not look to art related to "fluid dynamic bearings" (i.e. Tanaka et al. or Titcomb), or vice versa; as each are completely separate and distinct "bearing" technologies. Therefore, remaining unsatisfied are the possible sources of motivation to combine the references: 1) the nature of the problem to be solved; 2) the teachings of the prior art; or 3) the knowledge of persons of ordinary skill in the art. *In re Rouffet,* 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). Consequently, it more appears that the Examiner has used "hindsight" reconstruction to render claim 1 obvious as the "expressed motivation" to combine is lacking from the prior art references themselves and does not emanate from that knowledge generally available to the skilled artisan.

Accordingly, for at least the above reasons, Tanaka in view of Nii and in further in view of Titcomb fails to disclose or suggest each and every features of claim 1, and those claims depending therefrom, as required to support a *prima facie* case of obviousness.

In view of the above, the rejection should be withdrawn.

CONCLUSION

In view of the foregoing, Applicant respectfully submits that claims 1-14, 21, and 22 define subject matter that is patentable over the prior art and in immediate condition for allowance. Further and favorable reconsideration of this application and the issuance of a Notice of Allowance are requested. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 14-1437. Please credit any excess fees to such deposit account.

Respectfully submitted,
NOVAK DRUCE & QUIGG, LLP

/S. Peter Konzel/

S. Peter Konzel
Registration No.: 53,152
Customer No.: 70165
1300 Eye St. N.W.
1000 West Tower
Washington, D.C. 20005
Phone: (202) 659-0100
Fax: (202) 659-0105

Dated: May 29, 2007